

(3) Place the longitudinal centerline of the test probe so that it is $.5 \pm .04$ in. below the horizontal centerline of the No. 3 Rib (reference drawing number 79051-64, revision A-M) as shown in Figure 23.

(4) Align the test probe specified in § 572.36(a) so that at impact its longitudinal centerline coincides within .5 degree of a horizontal line in the dummy's midsagittal plane.

(5) Impact the thorax with the test probe so that the longitudinal centerline of the test probe falls within 2 degrees of a horizontal line in the dummy midsagittal plane at the moment of impact.

(6) Guide the probe during impact so that it moves with no significant lateral, vertical, or rotational movement.

(7) Measure the horizontal deflection of the sternum relative to the thoracic spine along the line established by the longitudinal centerline of the probe at the moment of impact, using a potentiometer (ref. drawing 78051-317, revision A) mounted inside the sternum as shown in drawing 78051-89, revision I.

(8) Measure hysteresis by determining the ratio of the area between the loading and unloading portions of the

force deflection curve to the area under the loading portion of the curve.

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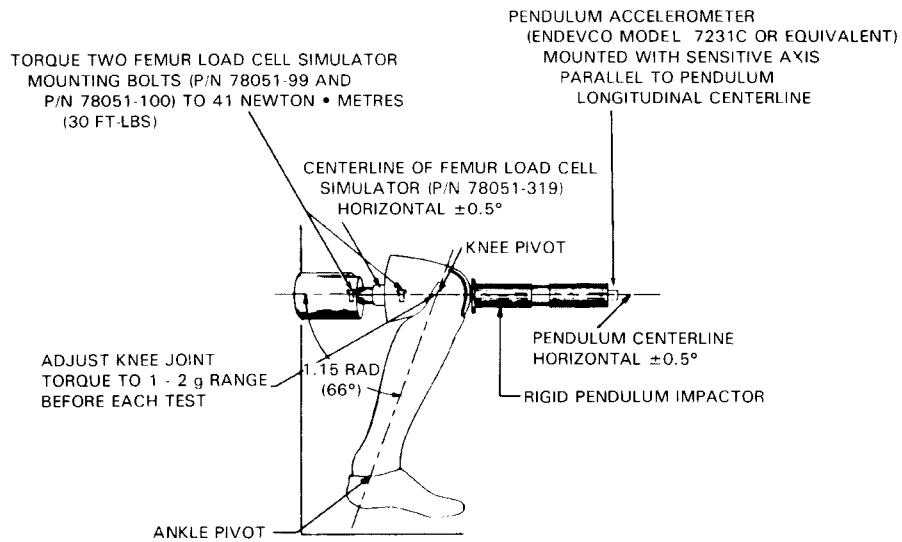
§ 572.35 Limbs.

(a) The limbs consist of the following assemblies: leg assemblies 86-5001-001 and -002 and arm assemblies 78051-123, revision D, and -124, revision D, and shall conform to the drawings subtended therein.

(b) When each knee of the leg assemblies is impacted, in accordance with paragraph (c) of this section, at 6.9 ft/sec ± 0.10 ft/sec by the pendulum defined in § 572.36(b), the peak knee impact force, which is a product of pendulum mass and acceleration, shall have a minimum value of not less than 1060 pounds and a maximum value of not more than 1300 pounds.

(c) *Test procedure.* (1) The test material consists of leg assemblies (86-5001-001) left and (-002) right with upper leg assemblies (78051-46) left and (78051-47) right removed. The load cell simulator (78051-319, revision A) is used to secure the knee cap assemblies (79051-16, revision B) as shown in Figure 24.

FIGURE 24
TEST SET-UP SPECIFICATIONS



(2) Soak the test material in a test environment at any temperature between 66 degrees F to 78 degrees F and at a relative humidity from 10% to 70% for a period of at least four hours prior to its application in a test.

(3) Mount the test material with the leg assembly secured through the load cell simulator to a rigid surface as shown in Figure 24. No contact is permitted between the foot and any other exterior surfaces.

(4) Place the longitudinal centerline of the test probe so that at contact with the knee it is colinear within 2 degrees with the longitudinal centerline of the femur load cell simulator.

(5) Guide the pendulum so that there is no significant lateral, vertical or rotational movement at time zero.

(6) Impact the knee with the test probe so that the longitudinal centerline of the test probe at the instant of impact falls within .5 degrees of a horizontal line parallel to the femur load cell simulator at time zero.

(7) Time zero is defined as the time of contact between the test probe and the knee.

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§ 572.36 Test conditions and instrumentation.

(a) The test probe used for thoracic impact tests is a 6 inch diameter cylinder that weighs 51.5 pounds including instrumentation. Its impacting end has a flat right angle face that is rigid and has an edge radius of 0.5 inches. The test probe has an accelerometer mounted on the end opposite from impact with its sensitive axis colinear to the longitudinal centerline of the cylinder.

(b) Test probe used for the knee impact tests is a 3 inch diameter cylinder that weighs 11 pounds including instrumentation. Its impacting end has a flat right angle face that is rigid and has an edge radius of 0.02 inches. The test probe has an accelerometer mounted on the end opposite from impact with its sensitive axis colinear to the longitudinal centerline of the cylinder.

(c) Head accelerometers shall have dimensions, response characteristics, and sensitive mass locations specified

in drawing 78051-136, revision A or its equivalent and be mounted in the head as shown in drawing 78051-61, revision T, and in the assembly shown in drawing 78051-218, revision R.

(d) The neck transducer shall have the dimensions, response characteristics, and sensitive axis locations specified in drawing 83-5001-008 or its equivalent and be mounted for testing as shown in drawing 79051-63, revision W, and in the assembly shown in drawing 78051-218, revision R.

(e) The chest accelerometers shall have the dimensions, response characteristics, and sensitive mass locations specified in drawing 78051-136, revision A or its equivalent and be mounted as shown with adaptor assembly 78051-116, revision D for assembly into 78051-218, revision R.

(f) The chest deflection transducer shall have the dimensions and response characteristics specified in drawing 78051-342, revision A or equivalent and be mounted in the chest deflection transducer assembly 78051-317, revision A for assembly into 78051-218, revision R.

(g) The thorax and knee impactor accelerometers shall have the dimensions and characteristics of Endevco Model 7231c or equivalent. Each accelerometer shall be mounted with its sensitive axis colinear with the pendulum's longitudinal centerline.

(h) The femur load cell shall have the dimensions, response characteristics, and sensitive axis locations specified in drawing 78051-265 or its equivalent and be mounted in assemblies 78051-46 and -47 for assembly into 78051-218, revision R.

(i) The outputs of acceleration and force-sensing devices installed in the dummy and in the test apparatus specified by this part are recorded in individual data channels that conform to the requirements of SAE Recommended Practice J211, JUN 1980, "Instrumentation for Impact Tests," with channel classes as follows:

(1) Head acceleration—Class 1000

(2) Neck force—Class 60

(3) Neck pendulum acceleration—Class 60

(4) Thorax and thorax pendulum acceleration—Class 180

(5) Thorax deflection—Class 180